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REPORT OF THE EXPERT MEETING ON INTERNATIONAL ARRANGMENTS FOR TRANSFER OF TECHNOLOGY: BEST PRACTICES FOR ACCESS TO AND MEASURES TO ENCOURAGE TRANSFER OF TECHNOLOGY WITH A VIEW TO CAPACITY-BUILDING IN DEVELOPING COUNTRIES, ESPECIALLY IN LEAST DEVELOPED COUNTRIES

Held at the Palais des Nations, Geneva
27 to 29 June 2001

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Chapter I

INTERNATIONAL ARRANGEMENTS FOR TRANSFER OF TECHNOLOGY

Outcome of the Expert Meeting

1. The Expert Meeting on International Arrangements for Transfer of Technology examined a range of issues for consideration by the Commission on Investment, Technology and Related Financial Issues pursuant to paragraphs 117 and 128 of the Bangkok Plan of Action (TD/386)[1/]. Experts made presentations and exchanged views on experiences and best practices at the international and national levels.

2. Experts noted that, in the knowledge-based global economy, technology plays an ever-important role in economic development. The concerns of the international community with respect to enhancing the transfer of technology to developing countries, in particular to the least developed countries, as well as their technological capabilities, are reflected in several dozen international instruments. These instruments express the willingness of development partners to cooperate multilaterally. There has been some success in implementation, but more needs to be done. The availability of information on arrangements for transfer of technology is an essential requirement for sustained multilateral cooperation. In this connection, the *Compendium* on transfer of technology-related provisions[2/] is a welcome contribution and should be continuously updated, as necessary, and widely disseminated, including through electronic media.

3. Experts also noted that most technology-related provisions are of a "best-efforts" nature. Governments, as well as civil society and the private sector, have an important role to play in the implementation of commitments, *inter alia* through public and private partnerships. In this connection, experts emphasized the importance of adequate protection of intellectual property in providing incentives for investment and transfer of technology in all countries, including in developing countries, taking into account the interests of producers, users and consumers.

4. Experts examined a number of best practices that can contribute to generating favourable conditions and opportunities for transfer of technology and capacity building. Some of these practices include the following:

(a) International instruments with built-in implementation mechanisms, including financial provisions and monitoring arrangements, have a promising implementation record and should be emulated. These

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1/ Paragraph 117: "UNCTAD should analyse all aspects of existing international agreements relevant to transfer of technology". Paragraph 128: "In the area of transfer of technology, UNCTAD should examine and disseminate widely information on best practices for access to technology".

2/ Compendium of International Arrangements on Transfer of Technology: Selected Instruments (UNCTAD/ITE/IPC/Misc.5).

instruments are relatively few and mainly for purposes of the public good, such as environmental protection. Nevertheless they can serve as a model in other areas such as infrastructure, health, nutrition and telecommunication;

(b) Ensuring the access, in particular of developing countries, to technological information, including information on state-of-the-art technologies on a competitive basis and on fair and equitable terms and conditions, in addition to information available from the public sources;

(c) Taking measures to prevent anticompetitive practices by technology rights holders or the resort to practices which unduly impede the transfer and dissemination of technology. Control of such practices is quite common in developed countries, but there is a lack of legislative measures in this regard in many developing countries. In particular, the development of relevant legislation at either the national or regional level is considered to be a promising option;

(d) Taking into account the possible short and medium-term costs, local working requirements, if applied in a manner that is consistent with the TRIPS Agreement and the Paris Convention, may be one way of enhancing transfer of technology;

(e) Making the TRIPS Agreement more conducive to transfer of technology, in accordance with its Articles 7, 8 and 40, including by reviewing its impact on transfer of technology and capacity building;

(f) Setting up of interministerial coordination committees at the national/regional level with regard to the interface between commitments in the TRIPS Agreement and national implementation requirements with a view to adjusting the TRIPS standards to local innovation needs and to favouring their pro-competitive implementation. UNCTAD should assist interested countries in establishing such committees by undertaking a needs assessment in the context of the ongoing programme of science, technology and innovation policy reviews;

(g) Establishing a special trust fund, based on successful models, to promote research and development in developing countries and other activities in the area of technology with a view to assisting developing countries in benefiting from their various international commitments;

(h) Designing measures and specific incentives for home-country enterprises, including fiscal and other incentives, to promote transfer of technology, especially through FDI in developing countries. In this connection, the

monitoring of implementation of the commitments in Article 66.2 of the TRIPS Agreement could contribute to building a sound and viable technological base in LDCs. UNCTAD should compile an illustrative list of home-country measures that might fulfil the requirements of Article 66.2;

(i) Supporting capacity-building, in particular in LDCs, through specific projects and programmes and by establishing a scientific and technological infrastructure on a cooperative basis for both the public and private research facilities so to enable them to assess, adopt, manage, apply and improve technologies;

(j) Creating a hospitable domestic regulatory environment for foreign investment, along with intellectual property protection, encourages access to the newest technology. It has been observed that the transfer of technology, is often most successful when accomplished by means of investment, specially by FDI. In this connection, technical cooperation should focus on technological capacity building with a view to enabling beneficiary countries to use intellectual property rights properly in ways that advance their national systems of innovation;

(k) Supporting transfer of technology and capacity building for enhancing the use of electronic commerce in developing countries, in particular by their small and medium sized enterprises, including enhancing the use of information and technologies in the public domain;

(l) The provision by host countries of an enabling environment for transfer of technology, taking into account the following considerations:

- Vocational training and recruitment of technical staff;
- Relationships with local public or private research centres and consultancy firms;
- Joint efforts by enterprises and Governments;
- Encouraging capacity building for assessing, adopting, managing, and applying technologies through *inter alia*: human resources development, strengthening institutional capacities for research and development and programme implementation, assessments of technology needs, and long-term technological partnerships between holders of technologies and potential local users.

5. UNCTAD should provide assistance to developing countries, in particular least developed countries, to strengthen their capacity for discussing and for negotiating technology transfer provisions in international instruments. UNCTAD should further explore ways and means for effective implementation of international commitments in the area of transfer of technology and capacity-building.

Chapter II

CHAIRPERSON=S SUMMARY OF DISCUSSIONS

1. The discussions of the Expert Meeting on agenda item 3 were structured according to the following two themes:

(a) Access to technology and capacity-building: general context;

(b) Issues in international arrangements: implementation process.

Discussions of the latter theme concentrated on categories of addressees, types of technology, and methods of implementation.

2. In his opening address, the Deputy Secretary-General of UNCTAD stressed the importance of the guiding principles set out in the UNCTAD X Plan of Action and the Bangkok Declaration aimed at the promotion of a "true partnership≅ between all countries based on inclusiveness, transparency and participation for all. As production was increasingly knowledge-intensive, the issue of transfer of technology and technological capacity-building in developing countries had become critical for attaining competitiveness and sustained growth in developing countries. Development policy should therefore be based on efforts to increase the ability of developing countries to access knowledge in order to enable them to compete for markets, accelerate economic growth and improve the situation of the poorer segments of society. Emphasizing the concerns of the international community with respect to enhancing the transfer of technology to developing countries, as well as their technological capabilities, he stressed that the technology-related provisions contained in international instruments all aimed to promote access to technologies and, in some cases, to develop local capabilities in developing countries, particular least developed countries. The main question was how to enhance the effectiveness of international arrangements for transfer of technology and capacity building through the effective implementation of the agreed provisions related to transfer of technology; and creation of capacity in least developed countries to acquire and adapt technology.

3. The Chairperson pointed out that it was recognized that the ability to create, acquire and adapt technologies constituted a critical determinant of a country's development process and participation in international trade. He stressed that the issues under the purview of the Expert Meeting were important, as they related to opportunities and challenges for transfer of technology and capacity-building that could be offered by international agreements. The technology-related provisions contained in such instruments followed different approaches, depending on the object and purpose of the agreement concerned, and were underpinned by a variety of shared concerns: effective integration of developing countries into world trade and investment, protection of intellectual property rights and sustainable development. The main questions were how to ensure the effectiveness of international arrangements for transfer of

technology and capacity building and what the best mechanisms were for their successful implementation.

4. In his introduction to agenda item 3, the Chief of the Investment Policies and Capacity-building Branch of the UNCTAD Division on Investment, Technology and Enterprise Development stressed that obtaining technology from abroad remained important to most developing countries, but it was today seen primarily as a means of accomplishing the more fundamental goal of building technological capacities. Technology transfer was a process, not a one-off transaction. Transfer of technology involved the successful learning of information by one party from another party, and the effective application of that information in generating marketable products and services. For this to happen, enterprises and the building of a sound technological base were key. At the same time, the challenge remained to establish and maintain effective access to these technologies and to devise mechanisms for deploying them effectively within the economy. National policies played a key role in this regard, through attracting foreign direct investment and technology, streamlining of approval procedures and fewer provisions on technology transfer or other operating requirements. However, international arrangements also had a role to play. The need for technology transfer had been recognized in various international fora. The *Compendium* of existing measures contained a selection of multilateral and regional and interregional instruments that contained provisions related to transfer of technology and capacity building. When bilateral agreements were included, the number of instruments exceeded 80. Most important in this regard was the TRIPS Agreement. The strengthening of the regimes for intellectual property rights was assumed to engender positive impacts in developing countries, including more innovation and additional inward foreign direct investment and technology transfer. But there were also concerns that access to critical technologies might be limited in an overly protectionist intellectual property environment that did not properly balance incentive to innovate against the needs for dissemination of knowledge.

5. The provisions on transfer of technology and capacity building in international instruments were underpinned by a variety of shared concerns: effective integration of the developing countries in world trade and investment, protection of intellectual property rights and sustainable development. These provisions, including those on financing, had different objectives and scope and different modes of implementation, and they were subject to different terms and conditions. In most cases, however, such provisions took the form of "best effort" commitments, rather than mandatory rules.

6. These provisions generally distinguished between developed and developing countries, assigning differing obligations to different categories of addressees, so that technology could be transferred from countries with strong capabilities, i.e. developed countries, to countries with low capacities, i.e. developing countries, more particularly LDCs. This distinction was a common feature of multilateral agreements, such as the TRIPS Agreement. In some instruments, such as Agenda 21, the addressees included enterprises, while in other instruments, such as regional agreements among developing countries, there was no explicit distinction. Second, technology-related provisions could also be distinguished with respect to the type of technology they covered. Thus, the provisions of the Vienna

Convention for the Protection of the Ozone Layer related primarily to technologies for environmental protection. In contrast, the TRIPS Agreement referred to technology in a broader sense. Third, technology-related provisions could be distinguished with respect to the methods of implementation. Here a broad trend was evident: those instruments with a specific target (such as environmental protection) generally had an in-built mechanism of implementation, including financial provisions (such as the Montreal Protocol), while those instruments dealing with transfer of technology as a broad objective often relied on national measures in developed country addressees for their successful implementation (such as the TRIPS Agreement (article 66.2)). In addition, many technology-related provisions relied on national measures, particularly home country measures, for their implementation.

7. Finally, he noted that instruments differed in the terms and conditions under which transfer of technology was expected to occur. In some agreements, provisions call for "fair and reasonable terms", whereas other agreements emphasized the commercial nature of such transfer. Interestingly, there was no clear correlation between the implementation of particular provisions and their respective terms and conditions. The Montreal Protocol scored high on implementation and it also provided for technology transfer "on fair and most favourable conditions".

8. The session began with a panel discussion. The first panelist (Professor J. Reichman) pointed that in today=s increasingly liberal and competitive environment for technology transfer, the role of Governments was limited to reducing bargaining inequalities between the different actors of the technology-transfer process without creating distortions in the process of technology transfer or impediments to investment. As far as routine government actions were concerned, he distinguished between four possible elements: (1) the formulation of general guidelines establishing contractual conditions of the technology transfer process that should be fair and reasonable; (2) the formulation and implementation of competition laws and regulations against abusive claims in contracts and misuses of intellectual property rights (IPRs), both relating to traditional restrictive business practices and problems relating to the information economy; (3) the formulation of regional responses to IPRs; and (4) the Abargaining around TRIPS≅, i.e. the exploitation of elements in the Agreement (in particular paragraph 41.5 of the TRIPS Agreement (Ano better legal product than provided to nationals≅)) that provided for national bargaining power in a technology-transfer situation involving either compulsory licensing, parallel imports or reverse engineering by honest means. In closing, he pointed to five broad ideas that could stimulate the transfer of technology to developing countries: (1) the establishment in developing countries of interministerial coordinating committees on TRIPS, with a view to stimulating the national innovation system; (2) increased access to scientific and technical data and information through universities, research institutes, etc.; (3) the development of new modes of production, taking advantage of modern information technologies; (4) the emulation of best practices in university/private sector exchanges with a view to stimulating local innovation; and (5) the creation of three international voluntary funds: a worldwide fund structured along the lines of the United States National Science Foundation and the National Institute for

Health; a worldwide venture capital fund for technology development and supply; and a worldwide fund to assist in the production of essential medicines in generic form.

9. The second panelist (Professor H. Ullrich) pointed to the key role of anti-trust-law in the technology transfer process. He stressed that transfer of technology, since it was a market-driven process that only occurred if the demand (i.e. the willingness to pay a market-price and the subsequent ability to use the technology) existed, was dependent on the strict application and maintenance of market mechanisms. Anti-trust-law which was aimed at preserving workable markets (i.e. markets that were subject to workable competition obliging enterprises to meet the prices of rivals) could aid in this process through the creation of the right conditions for the transferor and the recipient that established a balance between the interests of all parties (in subcontracting, foreign direct investment, research and development cooperation and licensing), although this balance must be adjusted to the specific circumstances prevailing in individual cases. In this context, he pointed to the importance of the TRIPS Agreement's provisions on competition policy (in particular article 40 prohibiting abuses of licensing transactions and article 40.2 enabling countries to develop more elaborate rules in this regard) and the value of appropriate national and regional competition legislation. He also stressed that the technology transfer provisions analysed in the secretariat=s issues note related to specific circumstances, as indicated in the note, where a common good was at stake (such as the global ozone layer in the Montreal Protocol and the deep sea-bed in UNCLOS) and it was only to this extent that there was a politically and legally persuasive case for asking developed country addressees to give additional incentives for transfer of technology. He emphasized that technology transfer had been placed and assessed within its commercial context, rather than treated as an isolated licensing transaction. Finally, he pointed out that the main provisions in international law appeared to be Articles 8.2 and 40 of the TRIPS Agreement (on abusive licensing terms) forming a window of opportunity for elaborating a national technology transfer-related competition policy.

10. The third panelist (Professor C. Correa) stressed the importance of effective and balanced domestic IPR protection laws and the recipient country's absorptive capacity, both in terms of a technology market and the technological capacities of the receiving enterprises. With regard to the role of international agreements, he pointed out that so far recognition of the importance of technology transfer for developing countries was only formal in nature, expressed solely through the existence of the relevant international and regional arrangements, but that further refinement of those arrangements was needed in order to facilitate the practical possibilities of their actual implementation.

11. In the ensuing discussion, experts from the Dominican Republic, Egypt, Japan, Morocco, Sri Lanka, South Africa and Zambia, serving as lead discussants, presented papers, focusing on technology transfer measures undertaken by their respective Governments with regard to implementation of international arrangements. It was pointed out that some countries had benefited from transfer of technology through the application of such measures at the national and international level.

12. In the ensuing discussion, experts inquired about the various worldwide funds proposed by one of the discussants and discussed the definition of various arrangements in international instruments on transfer of technology, as well as its crucial importance in areas of common good (e.g. water supply, waste treatment, eco-labelling, health, nutrition, etc). The point was made that the international competitiveness of developing country products depended crucially on access to required technology, and that was made more difficult by the high cost of research, lack of funds, the brain drain and the resulting shortages in terms of appropriate human resources. International agreements, including those at the bilateral level, could however be of great help in this process. Recognizing that, in the knowledge-based global economy, technology played an increasingly important role in economic development, it was emphasized that any transfer of technology had to be accomplished within internationally-recognized parameters of protection for intellectual property, as established by the TRIPS Agreement.

13. With regard to the role of national coordinating committees, it was indicated that they should aim at (a) minimizing the social cost of the application of the TRIPS agreement; (b) maximizing the benefits that the TRIPS agreement entailed; and identifying comparative advantages at the enterprise level. In this context, the importance of access to scientific and technological information and databases and the threat posed by the ongoing privatization and commodification of such information on the one hand, and of stimulating local innovation without creating exclusive property rights on the other, was stressed. The importance of intellectual property right protection and the role of the private sector was also highlighted, especially since the Internet was revolutionizing access to technology. A strong business environment, including supportive chambers of commerce, would be key to successful transfer of technology. In this regard, the validity of the public-private sector exchange mechanism for developing countries was discussed, with attention being drawn to the problems related to a diversion of research activities from basic research to contract research and the unavailability of appropriate institutional infrastructures and absorptive capacity in developing countries.

14. The work of the technical assistance programmes of UNIDO and ESCAP/APCTT in this regard was highlighted. The UNFCCC programmes and the ongoing work of the Conference of the Parties were explained, as were the requirements of technology needs assessments in developing countries. The need for navigation tools to sort through the abundance of available information was stressed.

15. In the discussion on Article 66.2 of the TRIPS Agreement (obligation on developed Members to provide their enterprises and institutions with incentives for technology transfer to least developed country members), the point was made that developed country government policy could only directly influence the role of public institutions in capacity-building, whereas enterprise actions were beyond their scope. In this context, reference was made to various incentive schemes applied by developed countries. The Meeting was briefed by WTO representatives with regard to a recent seminar on technology and updated on the recent discussion in the WTO Council for TRIPS on matters related to Article 66.2.

Reference was also made to two papers issued by the WTO (WT/CTE/W/22 and IP/C/W/169). It was stressed that this matter required more attention and work with a view to facilitating transfer of technology in least developed countries.

16. In terms of national experiences, experts discussed a number of expert papers that highlighted the need to focus national policies on creating the required absorptive capacity at the institutional and enterprise level. Also emphasized in this regard was the crucial role of appropriate policies to attract and benefit from foreign direct investment, in particular export-oriented investment. Here, the importance of creating backward linkages between foreign affiliates of transnational corporations and the local economy was stressed. This could be supported through national efforts aimed at the Aindigenization≡ of the economy and downstream technology coordination.

Chapter III

ORGANIZATIONAL MATTERS

A. Convening of the Expert Meeting

17. The Expert Meeting on International Arrangements for Transfer of Technology was held at the Palais des Nations, Geneva, from 27 to 29 June 2001.

B. Election of officers

(Agenda item 1)

18. At its opening meeting, the Expert Meeting elected the following officers to serve on its bureau:

Chairperson:	Mr. Chak Mun See (Singapore)
Vice-Chairperson-cum-Rapporteur:	Mr. Francois Leger (France)

C. Adoption of the agenda

(Agenda item 2)

19. At the same meeting, the Expert Meeting adopted the provisional agenda circulated in document TD/B/COM.2/EM.9/1. The agenda for the Meeting was thus as follows:

1. Election of officers
2. Adoption of the agenda
3. International arrangements for transfer of technology
4. Adoption of the outcome of the Meeting

D. Documentation

20. For its consideration of the substantive agenda item, the Expert Meeting had before it the following documentation:

"International arrangements on transfer of technology: Best practices for access to and measures to encourage transfer of technology with a view to capacity-building in developing countries, especially in least developed countries – Issues note by the UNCTAD secretariat" (TD/B/COM.2/EM.9/2);

"Compendium of international arrangements on transfer of technology: selected instruments" (UNCTAD/ITE/IPC/Misc.5.

E. Adoption of the outcome of the Meeting

(Agenda item 4)

21. At its closing meeting, the Expert Meeting authorized the Rapporteur to prepare the final report of the Meeting, under the authority of the Chairperson.

Annex

ATTENDANCE *

1. Experts from the following States members of UNCTAD attended the Meeting:

Australia
Belgium
Brazil
Brunei Darussalam
Canada
Chad
China
Costa Rica
Dominican Republic
Egypt
Finland
France
Germany
Guinea
India
Indonesia
Italy
Japan
Madagascar
Morocco
Netherlands
Pakistan
Russian Federation
Saudi Arabia
Senegal
South Africa
Spain
Sri Lanka
Sweden
Thailand
Tunisia
United Kingdom of Great Britain and Northern Ireland
United States of America
Venezuela
Yemen
Zambia

2. The following intergovernmental organizations were represented at the Meeting:

Arab Labour Organization
European Community

3. The following specialized agencies and related organization were represented at the Meeting:

International Telecommunication Union
World Meteorological Organization
World Intellectual Property Organization
United Nations Industrial Development Organization
The World Trade Organization

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* For the list of participants, see TD/B/COM.2/EM.9/INF.1.

4. Economic and Social Commission for Asia and the Pacific
United Nations Framework Convention on Climate Change

5. The following non-governmental organizations were represented at the Meeting:

General Category

Engineers of the World
International Centre for Trade and Sustainable Development
International Chamber of Commerce
International Federation of Pharmaceutical Manufacturers Associations
Third World Network

6. The following Panellists attended the Meeting:

Mr. Hanns Ullrich, Professor, Institut für vergleichendes Wirtschaftsrecht, Technologierecht und Recht des Beschaffungswesens, München
Sr. Carlos Correa, Director de la Maestria en Politica y Gestion, Ciencia y la Technologial, Centro de Estudios Avanzados, Universidad de Buenos Aires
Mr. Jerome Reichman, Duke University School of Law, Durham